



2024 VAPING FACTS

This is a list of vaping-related facts participants may use in their videos. **Remember** – participants must choose at least one fact to use in their video, using sources from the Escape the Vape website, the list below, or any of the following websites:

- [Campaign for Tobacco-free Kids - U.S. Resources](#)
- [Centers for Disease Control and Prevention - Quick Facts on the Risks of E-cigarettes for Kids, Teens, and Young Adults](#)
- [Minnesota Department of Health - E-cigarettes and Vaping](#)

Vapes and their Toxic Chemicals

- **Chemicals:** More than 67 known chemical compounds and thousands of unknown chemicals¹ have been found in vape aerosol. ² Vape aerosol is the cloud-like substance that comes out of the vape device when inhaled.
- **Nicotine:** Nearly all vapes contain nicotine, the highly addictive substance in tobacco.³
- **Nicotine:** Most disposable vapes contain massive amounts of nicotine.⁴ One disposable vape can contain 4000 or 5000 puffs. That can be equal to the nicotine in 35 packs of cigarettes.
- **Flavoring Chemicals:** With vapes available in over 15,000 different flavors, it's no surprise that 85% of young people who vape use flavored vape products.⁵ But the chemicals used to create these sweet, fruity, minty and candy flavors can damage your heart and blood vessels, increase your risk of heart disease, and damage lung tissue.⁶
- **Secondhand Exposure:** If you are hanging with someone who vapes, you are being exposed to toxic chemicals, nicotine, and cancer-causing agents from their exhaled vape aerosol.⁷

Vaping Harms to the Body

- **Lungs:** Puffing on a vape coats your lungs with harmful chemicals like ultra-fine particles, cancer-causing heavy metals like copper, lead, and nickel,⁸ and other cancer-causing chemicals.⁹

DID YOU KNOW?

Propylene glycol is a key ingredient in vape liquid because it produces vapor when heated. It's approved for use in many of the foods we eat. While it's okay as a preservative in your cake mix and ice cream, inhaling it isn't cool - it's not approved for that! Used in antifreeze and fog machines too, heating propylene glycol in a vape device creates toxic, cancer-causing chemicals that can harm your airways and have other nasty effects on your lungs.¹⁰

DID YOU KNOW?

Ethyl maltol is an artificial sweetener that tastes like cotton candy. Inhaling ethyl maltol in combination with the heavy metal copper causes lung cells to die.¹¹

- **Brain:** Puffing a vape sends a huge hit of nicotine right to your brain in 10 seconds.¹²
- **Brain:** Using nicotine impacts learning, memory, and attention, and it can change adolescent brain chemistry (because the teen brain is still developing). Vaping nicotine increases your risk of smoking and using other substances.¹³
- **Heart and Lung:** Flavoring chemicals used to create sweet, fruity, minty and candy vape flavors can damage your heart and blood vessels, increase your risk of heart disease, and damage lung tissue.¹⁴

Vaping Harms to Mental Health

- **Mood and Sleep:** Vaping messes with your mood. When the effects of the nicotine wear off, (in just a few short hours) you can feel irritated, jumpy, and have a hard time concentrating and sleeping.^{15,16}
- **Depression and Anxiety:** Vaping nicotine is strongly associated with increased anxiety and depression.¹⁷

Vaping Harms to the Environment

- **Vape Waste:** Vape waste is a major environmental concern as it combines three forms of waste: plastic waste, hazardous waste, and e-waste, all of which pose serious threats to the environment.¹⁸ *Despite being called “disposable” vapes shouldn’t be put in the trash.*
- **Vape Waste:** If the disposable vapes sold in a year were lined up, the total length will extend for 7,000 miles, equivalent to spanning the continental U.S. twice.¹⁹
- **Hazardous Components:** Used vape cartridges and nicotine-filled pods are hazardous components. They contain plastics, electronic circuitry, and nicotine residue, classifying them as hazardous waste. The danger doesn’t end there-these devices have the potential to leak heavy metals like mercury, lead, bromines, along with battery acid, contaminating the ground and further contributing to environmental harm.
- **Lithium Batteries:** Vapes contain lithium-ion batteries which further contributes to the hazardous waste caused by discarded vapes because they are toxic and can catch fire when damaged.

DID YOU KNOW?

Shockingly, five disposable vapes are discarded every second in the U.S., totaling 150 million devices per year. Despite containing reusable lithium-ion batteries, these disposable contributes significantly to environmental harm. To put it into perspective, the lithium from these devices could power about 6,000 Tesla’s.²⁰

DID YOU KNOW?

Lithium is a precious natural resource, but there’s a predicted global shortage by 2025. Ethical issues like child labor and hazardous work conditions are linked to extracting lithium and materials like cobalt that are used to make lithium-ion batteries.¹⁹ Environmental harms to land, water, wildfire, and people from extraction and production are also a significant concern.²¹

The Commercial Tobacco Industry

- **Predatory Marketing:** The commercial tobacco industry has historically targeted kids with candy and fruit-flavored tobacco products and continues to do so with vapes - promoting candy, fruit, and minty flavors, and colorful packaging that often mirrors the hottest tech gadget.^{22,23}
- **Predatory Marketing:** E-cigarette companies are still trying to attract young people through targeted marketing. Seeing ads for vapes on social media, websites, or at gas stations or convenience stores is linked to using e-cigarettes a year later.²⁴

DID YOU KNOW?

*Big Tobacco company Reynolds American, has urged the FDA to regulate disposable e-cigarettes to protect kids, despite selling Vuse, the second most popular e-cigarette among youth. Notably, Reynolds has a history of marketing to young audiences, as it created the controversial Joe Camel cartoon character, contributing to a significant rise in youth smoking in the 1990s.*²⁵

- **They Spend Billions:** Major tobacco companies spend \$9.2 billion per year - over \$25 million every day - to promote their products in the U.S. They spent \$97.3 million in Minnesota alone in 2022.²⁶
- **Infiltrating Schools:** One of the big vape brands targeted kids as young as third grade by funding youth summer camps, visiting schools, and paying community and church groups to distribute materials.²⁷
- **Kid Shows and Websites:** Vape companies have promoted their products on Nickelodeon, the Cartoon Network, and websites geared to high school students looking at colleges, to school-age kids on educational websites for math and social studies, and even on arts and crafts websites intended for much younger children.²⁸

¹ Tehrani, M., Newmyer, M., Rule, A., and Prasse, C. Characterizing the Chemical Landscape in Commercial E-Cigarette Liquids and Aerosols by Liquid Chromatography–High-Resolution Mass Spectrometry Chem. Res.Toxicol. 2021, 34, 10, 2216–2226 Publication Date:October 5, 2021https://doi.org/10.1021/acs.chemrestox.1c00253

² National Academies of Sciences E, Medicine. Public Health Consequences of E-Cigarettes. Washington, DC: The National Academies Press; 2018, www.med.stanford.edu 1/29/20.

³ U.S. Department of Health and Human Services. E-Cigarette Use Among Youth and Young Adults. A Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.

⁴ Williams, R. (2020). The rise of disposable JUUL-type e-cigarette devices. Tobacco Control, 29(e1), e134–e135. https://doi.org/10.1136/tobaccocontrol-2019-055379

⁵ https://www.insider.com/juul-put-ads-on-nickelodeon-execs-said-models-too-young-2020-2

⁶ Lee, W. H., Ong, S. G., Zhou, Y., Tian, L., Bae, H. R., Baker, N., Whitlatch, A., Mohammadi, L., Guo, H., Nadeau, K. C., Springer, M. L., Schick, S. F., Bhatnagar, A., & Wu, J. C. (2019). Modeling Cardiovascular Risks of E-Cigarettes With Human-Induced Pluripotent Stem Cell–Derived Endothelial Cells. Journal of the American College of Cardiology, 73(21), 2722–2737. https://doi.org/10.1016/j.jacc.2019.03.476

⁷ C.L.C. Almeida-da-Silva, H.M. Dakafay, K. O'Brien, D. Montierth, N. Xiao, D.M. Ojcius Effects of electronic cigarette aerosol exposure on oral and systemic health Biomed J, 44 (2021), pp. 252–259

⁸ Rastian B, Wilbur C, Curtis DB. Transfer of Metals to the Aerosol Generated by an Electronic Cigarette: Influence of Number of Puffs and Power. Int J Environ Res Public Health. 2022 Jul 30;19(15):9334. doi: 10.3390/ijerph19159334. PMID: 35954690; PMCID: PMC9368615.

⁹ Olmedo, P., Goessler, W., Tanda, S., Grau-Perez, M., Jarmul, S., Aherrera, A., ... Rule, A. M. (2018). Metal Concentrations in e-Cigarette Liquid and Aerosol Samples: The Contribution of Metallic Coils. Environmental Health Perspectives, 126(2), 027010. doi:10.1289/ehp2175

¹⁰ Wang P, Chen W, Liao J, Matsuo T, Ito K, et al. (2017) A Device-Independent Evaluation of Carbonyl Emissions from Heated Electronic Cigarette Solvents. PLOS ONE 12(1): e0169811. https://doi.org/10.1371/journal.pone.0169811

¹¹ Durrani K, El Din SA, Sun Y, Rule AM, Bressler J. Ethyl maltol enhances copper mediated cytotoxicity in lung epithelial cells. Toxicol Appl Pharmacol. 2021 Jan 1;410:115354. doi: 10.1016/j.taap.2020.115354. Epub 2020 Nov 30. PMID: 33271249. DOI: 10.1016/j.taap.2020.115354

¹² https://www.yalemedicine.org/news/vaping-nicotine-addiction#:~:text=When%20a%20teen%20inhales%20vapor,brain%20in%20about%2010%20seconds.

¹³ Tobore TO. On the potential harmful effects of E-Cigarettes (EC) on the developing brain: The relationship between vaping-induced oxidative stress and adolescent/young adults social maladjustment. J Adolesc. 2019 Oct;76:202–209. doi: 10.1016/j.adolescence.2019.09.004. Epub 2019 Sep 28.

PMID: 31574388. <https://pubmed.ncbi.nlm.nih.gov/31574388/>

¹⁴ Lee, W. H., Ong, S. G., Zhou, Y., Tian, L., Bae, H. R., Baker, N., Whitlatch, A., Mohammadi, L., Guo, H., Nadeau, K. C., Springer, M. L., Schick, S. F., Bhatnagar, A., & Wu, J. C. (2019). Modeling Cardiovascular Risks of E-Cigarettes With Human-Induced Pluripotent Stem Cell-Derived Endothelial Cells. *Journal of the American College of Cardiology*, 73(21), 2722-2737. <https://doi.org/10.1016/j.jacc.2019.03.476>

¹⁵ truthinitiative.org/3-ways-vaping-affects-mental-health

¹⁶ truthinitiative.org/research-nicotine-use-and-stress

¹⁷ Leslie FM. Unique, long-term effects of nicotine on adolescent brain. *Pharmacol Biochem Behav.* 2020 Oct;197:173010. doi: 10.1016/j.pbb.2020.173010. Epub 2020 Jul 30. PMID: 32738256; PMCID: PMC7484459.

¹⁸ Hendlin, Y. H. (2018). Alert: Public Health Implications of Electronic Cigarette Waste. *American Journal of Public Health*, 108(11), 1489–1490. <https://doi.org/10.2105/ajph.2018.304699>

¹⁹ <https://pirg.org/edfund/resources/vape-waste-the-environmental-harms-of-disposable-vapes/>

²⁰ <https://truthinitiative.org/research-resources/harmful-effects-tobacco/tobacco-and-environment>

²¹ <https://www.nytimes.com/2021/05/06/business/lithium-mining-race.html>

²² Brown, J. E., Luo, W., Isabelle, L. M., & Pankow, J. F. (2014). Candy flavorings in tobacco. *The New England journal of medicine*, 370(23), 2250–2252. <https://doi.org/10.1056/NEJMc1403015>

²³ <https://www.tobaccofreekids.org/assets/factsheets/0008.pdf>

²⁴ Sun, T., Vu, G., Lim, C. C. W., Johnson, B., Stjepanović, D., Leung, J., Connor, J. P., Gartner, C., Hall, W. D., & Chan, G. C. K. (2023). Longitudinal association between exposure to e-cigarette advertising and youth e-cigarette use in the United States. *Addictive Behaviors*, 146, 107810. <https://doi.org/10.1016/j.addbeh.2023.107810>

²⁵ https://www.tobaccofreekids.org/press-releases/2023_02_11_reynolds-american-pretends-to-care-about-youth-e-cigarette-use

²⁶ <https://www.tobaccofreekids.org/problem/toll-us/minnesota>

²⁷ https://mn365.sharepoint.com/sites/MDH_Tobacco_Team/Shared Documents/Youth Initiative Planning/ETV/Deliberate targeting kids House Oversight Press release

²⁸ https://www.tobaccofreekids.org/press-releases/2023_02_11_reynolds-american-pretends-to-care-about-youth-e-cigarette-use